

REMARKS

Claim 17 is amended to correct minor editorial problems. Claims 8-13 and 20 remain in this application. Claims 2-7, 15-16 and 19 have been canceled. Claims 1, 14, and 18 are amended and Claims 21-42 are added with a request for continued examination (RCE) of this application.

Rejection of Claims- 35 U.S.C. SECTION 103 (a)

The Examiner has stated that Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yedur et al. (6,197,455 B1) and Pierrat (5,780,187).

Applicant respectfully requests reconsideration of the final rejection from the examiner and continued examination of the application, because Claims 1, 8-14, 17-18 and 20-42 are nonobvious over Yedur et al. and Pierrat. The claimed invention provides a method to effectively reduce line edge roughness to accomplish good controllability for controlling line width of photoresist and to improve precision of pattern of photoresist without changing photoresist material or changing both developing process and baking process. The filling method of filling the trench(s) of the claimed invention is amended to fill the trench by dipping, spraying or spin coating as recited in Claims 1, 21 and 32.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. The claimed invention is not taught or suggested by Yedur et al. What Yedur

et al. taught is a method of repair of semiconductor masks using a scanning tunneling microscope. Irrespective of what Yedur et al. repairs, a scanning tunneling microscope must be used for the repair. The method of the claimed invention is totally different from and more convenient than the method disclosed by Yedur et al. It is so hard and incredible to teach or suggest a method for reducing line edge roughness of photomasks without any scanning tunneling microscope such as the method disclosed in Claims 1, 8-14, 17-18 and 20-42 of the claimed invention from a method that must use a scanning tunneling microscope. The claimed invention is nonobvious over the method disclosed by Yedur et al. because the claimed invention reduces line edge roughness of patterned photoresist without any scanning tunneling microscope.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. Pierrat not only does not teach or suggest the limitations of the filling method but also does not teach or suggest the additional material of the claimed invention. The claimed invention provides a method for reducing line edge roughness of patterned photoresist by dipping, spraying or spin coating as shown in Claims 1, 21 and 32. Pierrat deposits a second material having substantially the same reflectivity and phase response to a first material, i.e. a reflective photomask, to repair the missing material of the first material by laser assisted deposition or ion beam assisted deposition. Dipping, spraying or spin coating is the more convenient filling method than the laser assisted deposition and ion beam assisted

deposition. The method of the claimed invention is more convenient than the depositing method disclosed by Pierrat for repairing the photomask. The claimed invention is nonobvious.

The additional material of filling the trench(s) disclosed by applicant could be a fluid material, thermosetting polymer, thermoplasticity polymer, etc. as shown in Claims 8-13, 22-27 and 33-38. The second material disclosed by Pierrat for repairing the first material should have substantially the same reflectivity and phase response to a reflective photomask or should be the same material with the first material. The selectivity and the classifications of the additional material of the claimed invention are more convenient and more unlimited than that of the second material disclosed by Pierrat so the claimed invention is nonobvious.

Furthermore, Pierrat does not disclose all limitations of the claimed invention. Pierrat has to focus ion beam milling and polish to trim excess second material. Applicant could remove the unnecessary additional material by thermal treatment or spin as shown in Claims 18, 20, 30-31 and 41-42. Applicant believes that one of ordinary skill in the art should have the ability to know which removing method is more convenient and better and that the claimed invention is nonobvious. So the claimed invention is nonobvious over Pierrat because of the above reasons.

When combining the method disclosed by Yedur et al. with the method disclosed by Pierrat, the claimed invention is still nonobvious. Pierrat has to repair reflective photomask defects by a scanning tunneling microscope that is the main feature of the method disclosed by

Yedur et al after two methods being to combine to repair photomask. The claimed invention is nonobvious because the claimed invention reduces line edge roughness of patterned photoresist without any scanning tunneling microscope. So the claimed invention is nonobvious after combining two methods. Besides, neither Yedur et al. nor Pierrat teaches or suggests the combination of two methods disclosed by them.

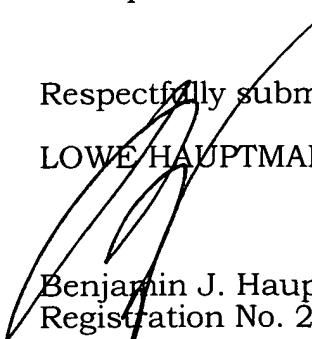
Conclusion

In light of the above amendment and remark, Applicant submits that Claims 1, 8-14, 17-18 and 20-42 as currently presented are in condition for allowance as acknowledged by the Examiner. Applicant respectfully requests reconsideration of the final rejection and that a timely Notice of Allowance be issued in this case.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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